or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphism selected from a group of polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 and 35983 of SEQ. ID. NO: 1.

#1

55. (Amended) An isolated polynucleotide consisting of at least 18 consecutive bases and up to about 100 consecutive bases of the sequence shown in SEQ ID NOS:1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphism selected from a group of polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 and 35983 of SEQ. ID. NO: 1.

#2

61. (Amended) An isolated polynucleotide consisting of a fragment of at least about 100 consecutive bases and up to about 235 consecutive kilobases of the sequence shown in SEQ ID NOS:1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphism selected from a group of polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 and 35983 of SEQ. ID. NO: 1.

#3

65. (Amended) An isolated polynucleotide consisting of a fragment of at least about 300 consecutive bases and up to about 235 consecutive kilobases of the sequence shown in SEQ ID NOS:1 or 2, or the complement thereof, wherein said isolated polynucleotide includes at least one polymorphism selected from a group of polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 and 35983 of SEQ. ID. NO: 1.

#4

Please add new claims 100-122 as follows:

100. (New) A kit for determining the likelihood of an individual being affected with hereditary hemochromatosis comprising,

#5

(a) one or more oligonucleotides each individually comprising a sequence that hybridizes under stringent hybridization conditions to a nucleic acid comprising one or more

polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 or 35983 of SEQ. ID. NO: 1; and

(b) instructions to use the kit to determine the likelihood of said individual being affected with hereditary hemochromatosis.

101. (New) A kit for determining the likelihood of occurrence of a hereditary hemochromatosis mutation in a nucleic acid sample comprising,

(a) one or more oligonucleotides each individually comprising a sequence that hybridizes under stringent hybridization conditions to a nucleic acid comprising one or more polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 or 35983 of SEQ. ID. NO: 1; and

(b) instructions to use the kit to determine the likelihood of occurrence of a hereditary hemochromatosis mutation in said nucleic acid sample.

#5

102. (New) The kit of claim 100 or 101, wherein one or more of the oligonucleotides each individually comprise a sequence that is fully complementary to a nucleic acid comprising one or more polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 or 35983 of SEQ. ID. NO: 1.

103. (New) The kit of claim 100 or 101, further comprising sequencing primers.

104. (New) The kit of claim 100 or 101, further comprising amplification primers.

105. (New) The kit of claim 100 or 101, further comprising reagents for labeling one or more of the oligonucleotides.

106. (New) The kit of claim 100 or 101, wherein one or more of the oligonucleotides are labeled.

107. (New) The kit of claim 106 that includes one or more reagents to detect the label.

108. (New) The kit of claim 100 or 101, wherein one or more of the nucleic acid molecules are each individually complementary to a nucleic acid comprising a polymorphism at position 35983 of SEQ. ID. NO: 1.

109. (New) The kit of claim 100 or 101, wherein one or more of the oligonucleotides are each individually complementary to a nucleic acid comprising a polymorphism at position 61465 of SEQ. ID. NO: 1.

110. (New) The kit of claim 100 or 101, wherein said kit is configured to detect the presence of two or more polymorphisms, wherein at least one of the polymorphisms is selected from a group of polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 and 35983 of SEQ. ID. NO: 1.

111. (New) The kit of claim 100 or 101, wherein said kit is configured to detect the presence of two or more polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 or 35983 of SEQ. ID. NO: 1.

112. (New) An array for determining the likelihood of an individual being affected with hereditary hemochromatosis comprising, one or more oligonucleotides immobilized on a substrate, wherein each oligonucleotide individually comprises a sequence that hybridizes under stringent hybridization conditions to a nucleic acid comprising one or more polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 or 35983 of SEQ. ID. NO: 1.

113. (New) An array for determining the likelihood of occurrence of a hereditary hemochromatosis comprising, one or more oligonucleotides immobilized on a substrate, wherein each oligonucleotide individually comprises a sequence that hybridizes under

stringent hybridization conditions to a nucleic acid comprising one or more polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 or 35983 of SEQ. ID. NO: 1.

114. (New) The array of claim 112 or 113, wherein each oligonucleotide individually comprises a sequence that is fully complementary to a nucleic acid comprising one or more polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 or 35983 of SEQ. ID. NO: 1.

115. (New) The array of claim 112 or 113, wherein one or more of the oligonucleotides are labeled.

116. (New) The kit of claim 112 or 113, wherein one or more of the oligonucleotides are each individually complementary to a nucleic acid comprising a polymorphism at position 35983 of SEQ. ID. NO: 1.

#5

117. (New) The array of claim 112 or 113, wherein one or more of the oligonucleotides are each individually complementary to a nucleic acid comprising a polymorphism at position 61465 of SEQ. ID. NO: 1.

118. (New) The array of claim 112 or 113, wherein said array is configured to detect the presence of two or more polymorphisms, wherein at least one of the polymorphisms is selected from a group of polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 and 35983 of SEQ. ID. NO: 1.

119. (New) The array of claim 112 or 113, wherein said array is configured to detect the presence of two or more polymorphisms at positions 230376, 214795, 207400, 200027, 195404, 160007, 125581, 120853, 96315, 61465, 40431, 38526 or 35983 of SEQ. ID. NO: 1.

120. (New) A kit for determining the likelihood of an individual being affected with hereditary hemochromatosis comprising,

(a) an antibody that specifically binds to a polypeptide encoded by a polymorphic nucleic acid molecules of the invention and

(b) instructions to use the kit to determine the likelihood of said individual being affected with hereditary hemochromatosis.

121. (New) A kit for determining the likelihood of occurrence of a hereditary hemochromatosis mutation in a nucleic acid sample comprising,

(a) an antibody that specifically binds to a polypeptide encoded by a polymorphic nucleic acid molecule of the invention and

(b) instructions to use the kit to determine the likelihood of occurrence of a hereditary hemochromatosis mutation in said nucleic acid sample.

122. (New) The kit of claim 120 or 121, further comprising a reagent for detecting binding of said antibody to said polypeptide.